



Evaluation #

200423-H
(Replaces 970056-H)

Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material

Dual Use Water Heater
(Wall Hung)

Manufacturer

Monitor Products, Inc.
1 Deer Park Drive
Monmouth Junction, NJ 08852

SCOPE OF EVALUATION

GENERAL: This review includes the cited: **Comm** code requirements in accordance with the current **Wisconsin Dwelling Code (UDC)**, the cited **International Mechanical Code (IMC)** and **International Fuel Gas Code (IFGC)**.

Comm requirements below in accordance with the current **Wisconsin Uniform Dwelling Code for 1- & 2-family dwellings:**

- The MZ Series water heaters were evaluated in accordance with **s. Comm 23.04(3)** and **Table 23.04-A**.

The **IMC** requirements below in accordance with the current **Wisconsin Amended IMC Code:**

- The MZ Series water heaters were evaluated in accordance with **s. IMC 301.1**, and **Chapter 10**.

The **IFGC** requirements below in accordance with the current **Wisconsin Amended IFGC Code:**

- The MZ Series water heaters were evaluated in accordance with **s. IFGC 623**.

DESCRIPTION AND USE

Models MZ20-40C and MZ25C water heaters are used for hydronic space heating and domestic water heating in combination with indirect storage water heaters.

Model MZ25S is a single unit combination domestic water heater and hydronic space heater. The MZ Series also includes: high and low voltage terminal blocks, condensate trap, pressure-temperature relief valve, fill-drain valve

with male hose connections, wall-hanger kit, and water flow-proving switch. The MZ25C and MZ25S units have a built-in expansion tank.

TESTS AND RESULTS

The dual use water heaters were evaluated in accordance with ANSI Z21.10.3 and are certified by the International Approval Services (AGA).

LIMITATIONS OF APPROVAL

The boilers shall be installed as allowed in **s. Comm 23.04(3)** and **Table 23.04-A** of the **UDC**; **s. IMC 301.1, Chapter 10**; **s. IFGC 623**, their listing and the manufacturer's recommendations.

Note: The **Uniform Dwelling Code (UDC)**, **Chapters Comm 20-25**, applies to only one- and two-family dwellings built since 1980. The **Wisconsin Commercial Building Code**, **Chapters Comm 61-65** and the **Wisconsin Amended 2000 IMC**, **IECC** and **IFGC** apply only to commercial and multi-family dwellings. The **Wisconsin Plumbing Code**, **Chapters Comm 82-87**, apply to all buildings. Note the code from which a requirement arises and to what buildings it therefore applies.

- **WI Boiler Code: Section Comm 41.45(1)** of this code exempts water heaters from the boiler code.
- **Listing:** Per **ss. Comm 23.04** and **IFGC 629**, water heaters used for space heating need to be listed for such use. The data plate shall indicate that the unit can be used for simultaneous space heating. **Section IFGC 623** specifies that they be listed per ANSI Z21.10.1 or ANSI Z21.10.3. This standard is intended for dual use, which means that in addition to the heating use, it shall also be used for potable use, which may be satisfied with at least one properly connected water fixture. (A hose bibb is a fixture.)
- **Unlisted Space-Heating Only Equipment** - Water heaters listed per ANSI Z21.10.1 or ANSI Z21.10.3 that are used for space-heating only would be considered unlisted. **Section IFGC 65.0301** for gas-fired appliances and **s. Comm 64.0301(2)** for other fuels allow unlisted equipment if a Wisconsin-registered engineer or architect tests the appliance output and safety controls to these or other appropriate standards as determined by the manufacturer. This may be done for each installation or the manufacturer may obtain a WI Material Approval for repetitive installations. These Material Approvals may also be valid under the UDC.
- **Efficiency:** Federal appliance efficiency standards have usurped our efficiency requirements for smaller appliances for which they have developed a standard. They require that a manufacturer meet the standard applicable for the type of appliance that they market an appliance as. There is a federal standard for potable water heaters. There is a federal standard for boilers, which would apply to water heaters used for space heating only. There is no state or local responsibility or authority to enforce the federal rules.
- **Sizing:** Per **s. Comm 22.12(2)**, the water heater shall be oversized for potable water usage between 43% and 49% of the calculated space heating usage. Per **s. Comm 64.1001**, **s. IFGC 623** for gas appliances and **s. Comm 82.40(5)(a)**, a dual-use water heater shall be sized to provide sufficient hot water to supply both the daily and hourly peak loads of the building.
- **Plumbing Code:** Any equipment or piping that comes in contact with potable water must meet the potable water plumbing materials standards. (A WI Plumbing Products Approval is not required anymore.) The installation of the system that comes in contact with the potable water system must be installed by a properly credentialed plumber. A floor drain must be provided for the water heater, if the water heater is installed on the lowest floor level. If a heat exchanger is used and only food grade additives are used, it may be a single-wall heat exchanger. If non-food grade additives are used, then the heat exchanger shall be a vented, double wall heat exchanger as required by **s. Comm 82.41(3)(d)**. The valves and safety devices on the system must comply with the Plumbing Code.
- **Non-potable piping:** If the listing, engineer/architect statement or WI Material Approval permits the installation of back-flow prevention at the water heater inlet or isolation of the water heater, then non-potable material potable water materials may be used. Non-potable, heat distribution piping standards are not specified in either code.
- **Backflow Protection:** If back-flow protection is installed before the water heater, then the buildings water system is no longer available for expansion of the heated water. The temperature-pressure relief valve must be selected in coordination with the back-flow preventer. There needs to be an expansion tank or other expansion means provided. These items, if allowed, shall be installed per the water heater's listing.

- **Temperature Setting** – Per **s. 704.06** of the State statutes, a residential landlord shall set the potable water heater temperature no higher than 125 degrees F. Per **s. Comm 81.01(126)** of the Plumbing Code, the minimum water temperature for hot potable water is 110 degrees F.
- **Isolated Water Heaters:** If a water heater is installed with no connection to the potable water system, then typically proper water expansion means shall be provided per the water heater's listing.
- **Pipe Insulation** - Per **ss. Comm 22.19** and **63.1029**, heating pipes shall be insulated to R-4 when passing through unheated spaces.
- **Combustion Air** – Combustion air shall be provided per **ss. Comm 23.08, IFGC 304** for gas fired appliances or **IMC 701** for all other fuels.

BOILERS USED FOR SPACE HEATING SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH THE ASME STANDARDS ADOPTED UNDER S. Comm 41.40, WISCONSIN BOILER AND PRESSURE VESSEL CODE.

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: August 19, 2004 By: _____

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Product & Material Review
Integrated Services Bureau